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5. FIRST RECORD OF ALBINO SAMBAR *RUSA UNICOLOR* (KERR) FROM CORBETT NATIONAL PARK, INDIA

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A rare sighting of an albino Sambar *Rusa unicolor* (Kerr 1792) was made on June 19, 2010, in the core area of the Corbett Tiger Reserve. The forest department informed us about the occurrence of a white-coloured Sambar in the Jamunagawd beat of Jhirna range. As a part of the tiger monitoring team, we visited the area to get photographic evidence.

At 29° 30' 0.8" N and 78° 55' 30.3" E, we observed a white Sambar fawn (Fig. 1) accompanied by its normal coloured mother. The fawn was pure white with reddish snout and red eyes. The inside of the ears was pinkish. The fawn was feeding on grass and did not exhibit any abnormal activity.

Earlier Champion (1938) sighted an albino Sambar hind in the mixed Sal and Chir pine forest near Chaukhamb in the hills of Kohtri valley. Pillay (1953) also reported seeing an albino Sambar hind and an albino Sambar stag from Talamalai range of north Coimbatore. Another record of a museum specimen of albino Sambar from the Archaeological Museum of Udaipur was given by Tehsin (2006). Sangai Express



Fig. 1: Albino Sambar *Rusa unicolor* sighted at Corbett Tiger Reserve

(March 30, 2010) published the birth of a white coloured fawn on March 23, 2010, at Manipur Zoological Garden, Iroishemba.

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 TEHSIN, R.H. (2006): An Albino Sambar *Cervus unicolor* Kerr. *J. Bombay Nat. Hist. Soc.* 103(1): 97.

6. CONSERVATION STATUS OF RAJAJI-CORBETT CORRIDOR FOR TIGER AND ELEPHANT MOVEMENT

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Rajaji-Corbett corridor, composed of two stretches of forests, connects two tiger-elephant national parks in northern India. The southern stretch (c. 300 sq. km), including the

forests of Haridwar forest division and Bijnor plantation division, is highly fragmented and heavily disturbed. Although used by elephants (*Elephas maximus*), due to high levels of

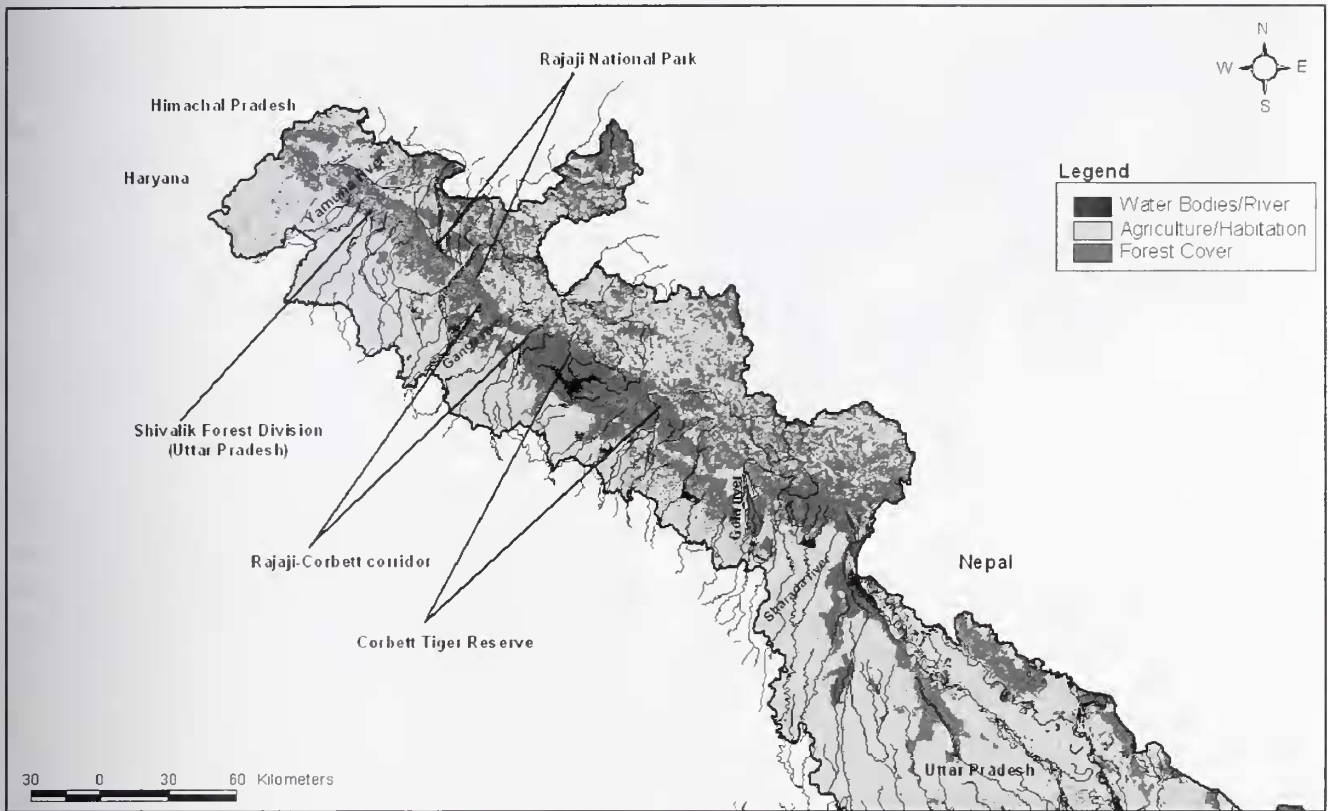


Fig. 1: Tiger-Elephant landscape in Uttarakhand, northern India

disturbance, this strip of forest is avoided by the tiger (*Panthera tigris*). On the contrary, although disturbed, the northern stretch (c. 200 sq. km), formed by Kotdwar and Laldhang ranges of Lansdowne forest division, as it is hilly, is used both by the tiger and elephants. The future of the 60,000-70,000 people, who live on the southern boundary of the northern corridor, is closely related to the ability of these forests to sustain the water flow in the streams that arise from these forests. The best way of protecting these forests would be to highlight their importance as watershed through conservation awareness programmes to the people. Protection and management of these forests would ultimately benefit not only the tiger and elephant, but also people.

One important area for the long-term conservation of the northern Indian populations of Tiger and Elephant is the forest tract (c. 7,500 sq. km) between Yamuna and Sharda rivers (Fig. 1). Although the habitat connectivity in this range is broken along Ganga and Gola rivers (Johnsingh *et al.* 1990, 2004), this tract has been identified as Rajaji-Corbett Tiger Conservation Unit (TCU), one of the 11 Level I TCUs in the Subcontinent (Wikramanayake *et al.* 1998), and as Shivalik Elephant Range, one of the 11 Elephant Ranges identified in India (Bist 2002). The largest contiguous block of c. 4,000 sq. km habitat in this tract falls between the left bank of Ganga and Gola rivers, and evidently supports breeding

populations of these species. This area encompasses the eastern part of Rajaji National Park (RNP), Corbett Tiger Reserve (CTR) and the adjacent forest divisions, including the areas between RNP and CTR, known as the Rajaji – Corbett corridor, the most crucial habitat connectivity here (Fig. 2). The eastern part of RNP has shown remarkable recovery of prey populations and tiger number after the resettlement of pastoral *gujjars* (Harihar *et al.* 2009a) and CTR supports one of the high density tiger populations (c. 16/100 sq. km, Jhala *et al.* 2008).

The forests of this corridor are in two stretches. One lies south of the main Himalaya, along the Shyampur-Chiriyapur forest ranges of Haridwar Forest Division (FD) in the state of Uttarakhand and Bijnor Plantation Division in Uttar Pradesh; this corridor is about 300 sq. km. The other strip of forest is in the north, along the Laldhang-Kotdwar forest ranges of Lansdowne FD in the foothills of the Outer Himalaya. The total area of this stretch is around 200 sq. km and the entire tract is in Uttarakhand. Although both the corridor forests are disturbed by biotic pressures such as grazing, fodder, firewood, gravel and sand collection, our surveys in early 2000 showed that the southern corridor is much more disturbed by the presence of numerous villages and *gujjar* (a pastoral community) camps. Yet this corridor, which is on flatter terrain, is used by elephants (groups as

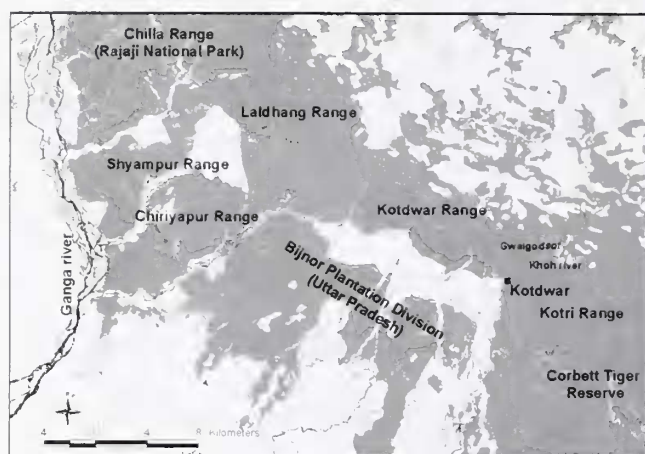


Fig. 2: Rajaji Corbett corridor

well as bulls), Leopard *P. pardus*, Nilgai *Boselaphus tragocamelus*, Chital *Axis axis* and Wild Pig *Sus scrofa*. No evidence of tiger was seen. The northern corridor (Laldhang-Kotdwar ranges) being hilly is used by tiger and other wide ranging mammals such as leopard, Sambar *Rusa unicolor* and elephant. The Himalayan foothills criss-crossed with numerous *nullahs* provide excellent cover to predators such as tiger and leopard, and areas that are free from poaching support a high density of sambar (Harihar *et al.* 2009b).

This large deer is ecologically (preference for dense cover) and behaviourally (being crepuscular and nocturnal, solitary or in small groups and non-aggressive) the most suitable prey for tiger in the hilly and mountainous parts of its range in south and south-east Asia. Sunderraj *et al.* (1993) recorded that elephant bulls use the entire northern corridor. The groups from west were unable to cross as a result of steep terrain at Gwalgod *sot*. Human disturbance was high in the entire tract. For instance, in Laldhang range (94 sq. km), Johnsingh and Negi (2003a, b) found 34 *gujjar deras* (settlements) with 203 *gujjars* and 330 buffaloes, and four *bhotia* (another pastoral community) *deras* with 17 people, 800 sheep and 250 goats. In Kotdwar range (92 sq. km), there were six *gujjar deras* with 57 *gujjars* and 82 buffaloes, and six *bhotia deras* with 38 people, 990 sheep, 290 goats and 17 ponies. *Gujjars* depend on buffaloes for their sustenance, and *bhotias* on goats and sheep. *Bhotias* use the forests only in winter, as they migrate to better pastures high up in the Himalayas during summer. When Sunderraj *et al.* (1993) studied elephants here the eastern part was heavily disturbed as a result of bamboo *Dendrocalamus strictus* collection.

In addition, Johnsingh and Negi (2003a, b) enumerated 50 villages along the southern boundary of the northern corridor (Laldhang-Kotdwar forest ranges) in a width of 5 km from the forest boundary. These villages have about 4,000 families with human population of 20,000 to 30,000.

Use of the forest by these people was apparent from over 40 trails/paths into the 27 km long boundary of the corridor forests between Laldhang and Kotdwar. People use these trails for fodder and firewood collection, as well as for livestock grazing. The *gujjars* and *bhotias* living in the forest also use these trails. Similarly, along the northern boundary of this corridor, in a 3 km width, 36 villages were enumerated with about 3,000 families and a human population of 15,000 to 20,000. The Kho river forms the eastern boundary of the northern corridor (Fig. 2). The forests along the river, from Kotdwar town to about 3 km into the forest, are under enormous firewood and fodder collection pressure from the people of Kotdwar. Beyond the iron bridge across the river, this zone is extensively used by elephants.

Due to high biotic pressures, tiger use of this corridor is very much limited. In late 2002, in Laldhang-Kotdwar ranges, 35.2 km were surveyed along eight riverbeds, and only five sets of tiger pugmarks were seen. There were no pugmarks along the Malan river in Kotdwar range, or Chawariya and Nalgadi *sot* (river) in Laldhang range. Occurrence of elephant dung along the Malan riverbed, which was heavily used by villagers as a footpath, was negligible, and absent in Chawariya *sot* (Johnsingh *et al.* 2004). Although Sunderraj *et al.* (1993) did not record evidence of elephant groups east of Gwalgod *sot* in the summer of 2005, frequent movement of groups from the forests east of Kho river (Kotri range) to the river were observed, in spite of heavy traffic along Kotdwar-Lansdowne road. The groups used both banks of the river, and fed heavily on *Mallotus philippensis* and *Dendrocalamus strictus*. However, we are not certain whether they are able to cross Gwalgod *sot* and range into the western part of the corridor.

Reducing the dependency of people on the northern corridor forests, which are vital not only for the long-term conservation of tiger and elephant, but also for the water regime of the area, should be the objective of both Forest Department and conservation NGOs. In this regard, we come up with the following recommendations:

I. Awareness programmes: The best way of getting the support of the local people in protecting these corridor forests, which are vulnerable to summer fires set by people, is by convincing them that this forest is crucial to sustain the flow of water that emanates from the forest. Numerous studies (Meher-Homji 1989; Dudley and Stolton 2003) have highlighted the importance of forests in maintaining water regime and microclimate. Presently three streams (Rawasan, Malan and Kho) are perennial and two (Maili and Sigaddi) have water up to the boundary of the forest till March, remaining dry only from April to June. Kotdwar township, with about 50,000 people (the population has doubled since

1991), gets its drinking water from the Kho river. Protection of the corridor forests, which form the catchment area of these streams, therefore becomes extremely crucial. Massive and sustained conservation awareness programmes in the villages and Kotdwar township about the importance of these forests as watershed, and the need to protect them from fire, would certainly help in ultimately reducing pressures on the forests. Massive planting of local evergreen species such as *Mangifera indica*, *Putranjiva roxburghii* and *Syzygium cuminii* around springs in this corridor, involving local people, particularly school children, is likely to stimulate ecological awareness.

2. Protection: Special efforts should be made to protect the forests (from the iron bridge across Kho river near Kotdwar to Amsod village, a distance of about 5 km) from development and garbage as a result of picnicking at the river. The perennial and scenic, small river can attract encroachers, and the abandoned buildings, past the iron bridge near a small Lord Shiva temple, and in the Department of Water Supply compound, about a kilometre from the iron bridge, might be

misused. A restaurant, which is showing signs of expansion, has already come up to the right of the road, just a kilometre short of Amsod. Since the Kho river is used by elephants and other wildlife, it may be necessary to convert the two staff quarters in the abandoned nursery into an anti-poaching camp.

3. Resettlement: On a priority basis, the *gujjar* and *bhotia deras* from Laldhang and Kotdwar ranges should be resettled in the southern periphery of Chiriyapur Range of Haridwar FD.

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7. SIGHTING OF A RARE DARK MORPH OF GREY FRANCOLIN *FRANCOLINUS PONDICERIANUS* GMELIN 1789 NEAR SURENDRANAGAR, GUJARAT, INDIA

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On August 16, 2010, around 17:30 hrs. while in the wilderness around Surendranagar city of Gujarat, on a

photographic trip I sighted a pair of dark birds moving in a bush in the wild areas. At first I mistook it for a black